

इंटरनेट

मानक

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IS 12507 (1988): General requirements for Dental Pliers  
[MHD 8: Dentistry]



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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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## Indian Standard

GENERAL REQUIREMENTS FOR  
DENTAL PLIERS

**1. Scope** — This standard prescribes requirements relating to material, dimensional tolerances, heat treatment, workmanship, surface condition, tests, marking and packing and gives a recommended sampling plan for pliers used in dentistry.

**2. Material** — Stainless steel conforming to Designation 30 Cr 13 of IS : 6603-1972 'Specification for stainless steel bars and flats'.

### 3. Tolerances on Dimensions

**3.1** Tolerances on linear dimensions shall be in accordance with the following:

- a)  $\pm 0.05$  mm on dimensions up to 2.00 mm
- b)  $\pm 0.1$  mm on dimensions above 2.0 mm and up to 5.0 mm,
- c)  $\pm 0.2$  mm on dimensions above 5.0 mm and up to 20.0 mm,
- d)  $\pm 0.5$  mm on dimensions above 20.0 mm and up to 50.0 mm,
- e)  $\pm 1.0$  mm on dimensions above 50.0 mm and up to 100.0 mm, and
- f)  $\pm 2.0$  mm on dimensions above 100.0 mm.

**3.2** Tolerances on angular dimensions shall be as under:

- a)  $\pm 1^\circ$  for angles up to  $10^\circ$ , and
- b)  $\pm 2^\circ$  for angles greater than  $10^\circ$ .

**3.3** The two halves of the instrument shall, however, not differ at any dimensions and shall match with each other perfectly.

**4. Heat Treatment** — The pliers shall be uniformly hardened and tempered to the specified hardness.

**4.1** Mating surfaces of the same instrument, such as opposite jaws and shanks, shall not vary in hardness by more than 40 HV.

### 5. Workmanship

**5.1** The two halves of the pliers shall move freely about the joint without any play and shall open fully. The instrument shall be balanced, the movement shall be even and the jaws shall register accurately.

**5.2** All edges shall be even and rounded. In the case of cutting type pliers however, the cutting edges shall be sharp and, when examined under a magnification of  $\times 10$ , shall be free from defects.

**5.3** The joint shall conform to the relevant requirements of 6 of IS : 3642-1978 'General requirements for surgical instruments (first revision)'. Unless specified otherwise in the relevant specification, the ends of the pin or screw in the joint shall be finished flush with the surface of the pliers. The screw shall be rendered immovable in use but shall be capable of being unscrewed for repairs.

**5.4** Serrations, where provided, shall conform to the relevant requirements of Section 1 of IS : 3642-1978.

### 6. Surface Condition

**6.1 General** — All surfaces shall be free from pores, crevices and grinding marks. The instruments shall be supplied free from residual scale, acid grease and grinding and polishing materials. Compliance with these requirements shall be checked by inspection using normal vision (corrected if necessary).

**6.2 Surface Finish** — The surface finish shall be one of, or a combination of, the following:

- a) Mirror polished;

b) Reflection-reducing, for example satin finish, matt black finish; and

c) An applied surface coating, for example for insulation purposes.

**Note** — The satin finish should be effected by an appropriate procedure, such as grinding, brushing, electropolishing and, in addition, satin finishing ( glass beading or satin brushing ). The finish should be uniform and smooth and it should reduce glare.

Instruments of mirror finish should be adequately ground to remove all surface imperfections and polished to remove grinding marks, resulting in a mirror finish. The mirror finish should be effected by an appropriate procedure, such as polishing, brushing, electropolishing, and mirror buffing.

**6.3 Passivation and Final Treatment** — The instruments shall, unless the metallurgical characteristics of the instrument ( for example the presence of brazed or soldered joints ) render it inappropriate, be treated by a suitable passivation process, for example by electropolishing or by treatment with 10 percent ( v/v ) nitric acid solution for not less than 30 minutes at a temperature not less than 10°C and not exceeding 60°C. The instruments shall then be rinsed in water and dried in hot air.

**Note** — If the joint is lubricated, the lubricant should be noncorrosive and suitable for medical application according to the Indian Pharmacopoeia.

## **7. Tests**

**7.1 Hardness Test** — The pliers shall be tested for the specified hardness in accordance with IS : 1501 ( Part 1 )-1984 'Method for Vickers hardness test for metallic materials; Part 1 HV 5 to HV 100 ( *second revision* )'.

**7.2 Corrosion Resistance Test** — The pliers shall be tested in accordance with IS : 7531-1975 'Method for boiling and autoclaving test for corrosion resistance of stainless steel surgical instruments'. The pliers shall show no sign of corrosion after the test.

## **8. Marking and Packing**

**8.1** The pliers shall be legibly and indelibly marked with the manufacturer's name, initials or recognized trade-mark; the words 'stainless steel' or letters 'ss'; and the country of manufacture.

**8.2** Each instrument shall be put in a polyethylene bag or wrapped in wax paper. The instruments shall then be packed in cartons in accordance with the current trade practice.

**8.2.1** Alternatively, the instruments may be packed as agreed to between the purchaser and the supplier.

**8.3** The packages shall bear the name of the instrument, the manufacturer's name, initials or recognized trade-mark; the words 'stainless steel' and the country of manufacture.

**8.4 Standard Marking** — Details available with the Bureau of Indian Standards.

**9. Sampling** — The scale of sampling and criteria for conformity of the instruments to the requirements of this specification shall be as agreed to between the purchaser and the supplier. A recommended sampling plan is given in Appendix A.

## **A P P E N D I X A**

( *Clause 9* )

### **SAMPLING OF DENTAL PLIERS**

**A-1. Lot** — In any consignment, all the pliers of the same type and pattern, produced from the same material under similar conditions and having same surface finish shall constitute a lot.

**A-2.** The number of pliers to be selected from each lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 1.

**A-2.1** These pliers shall be selected from the lot at random and in order to ensure randomness of selection, procedures given in IS : 4905-1968 'Methods for random sampling' may be followed.

### **A-3. Number of Tests and Criteria for Conformity**

**A-3.1** All the pliers selected at random in accordance with col 1 and 2 of Table 1 shall be examined for shape and dimensions, workmanship, and surface condition ( visual ). None of the instruments in the sample shall fail to meet these requirements if the lot is to be accepted under this clause.

**TABLE 1 SCALE OF SAMPLING***( Clauses A-2, A-3.1 and A-3.2 )*

<b>Lot Size</b>	<b>Sample Size</b>	<b>Sub-sample Size</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
Up to 15	2	1
16 to 50	3	1
51 to 150	5	2
151 and above	8	3

**A-3.2** A sub-sample of size given in col 3 of Table 1 shall be selected at random from the pliers drawn as in **A-2**. The instruments in the sub-sample shall be subjected to hardness, corrosion resistance and other tests prescribed in the relevant specification. No failure shall occur in any of these tests if the lot is to be accepted under this clause.